INDEX TO AUTHORS

ALEXANDER, DOROTHY L. See FOSTER, JONES, HENLE, and DORFMAN, 257

ANDERSON, CHARLES R. Experimental typhus infection in the Eastern cotton rat (*Sigmodon hispidus hispidus*), 341

BALE, W. F. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455

—. See HAHN, MILLER, ROBSCHEIT-ROBBINS, BALE, and WHIPPLE, 77

BERNHEIMER, ALAN W. Kinetics of lysis by *Clostridium septicum* hemolysin, 333

—. Nutritional requirements and factors affecting the production of toxin of *Clostridium septicum*, 321

—. Parallelism in the lethal and hemolytic activity of the toxin of *Clostridium septicum*, 309

BODIAN, DAVID. See HOWE and BODIAN, 383

BOYD, WILLIAM C., and PURNELL, MARJORIE A. The essential difference between the two optimum proportions flocculation ratios, 289

BUDDINGH, G. JOHN. Experimental *Streptobacillus moniliformis* arthritis in the chick embryo, 59

CHESNEY, ALAN M., and WOODS, ALAN C. Further observations on the relation of the eye to immunity in experimental syphilis. II. The development of immunity after primary intracorneal inoculation, 357

— and —. III. The influence of a non-specific inflammatory reaction in the cornea on the development of immunity in that tissue after intratesticular inoculation, 369

CLAUDE, ALBERT. The constitution of mitochondria and microsomes, and the distribution of nucleic acid in the cytoplasm of a leucemic cell, 19

CURNEN, EDWARD C. See MIRICK, THOMAS, CURNEN, and HORSFALL, 391, 407, 431

DAWSON, CHARLES R. See KEIL, WASSERMAN, and DAWSON, 275

DONG, LUTHER. See FABER, SILVERBERG, and DONG, 39

DORFMAN, FRIEDA. See FOSTER, JONES, HENLE, and DORFMAN, 257

EAGLE, HARRY, and MUSSELMAN, ARLYNE D. The spirocheticidal action of penicillin *in vitro* and its temperature coefficient, 493

ENNS, T. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455

FABER, HAROLD K., SILVERBERG, ROSALIE J., and DONG, LUTHER. Poliomyelitis in the *cynomolgus* monkey. III. Infection by inhalation of droplet nuclei and the nasopharyngeal portal of entry, with a note on this mode of infection in *rhesus*, 39

FINK, R. M., ENNS, T., KIMBALL, C. P., SILBERSTEIN, H. E., BALE, W. F., MADDEN, S. C., and WHIPPLE, G. H. Plasma protein metabolism—normal and associated with shock. Observations using protein labeled by heavy nitrogen in lysine, 455

FLORIO, LLOYD, STEWART, MABEL O., and MUGRAGE, EDWARD R. The experimental transmission of Colorado tick fever, 165

—. See STEWART, FLORIO, and MUGRAGE, 189

FOSTER, CLAIRE, JONES, JAMES H., HENLE, WERNER, and DORFMAN, FRIEDA. The comparative effects of vitamin B_1 deficiency and restriction of food intake on the response of mice to the Lansing strain of poliomyelitis virus, as determined by the paired feeding technique, 257

FRIEDEWALD, WILLIAM F. Adjuvants in immunization with influenza virus vaccines, 477

—. Certain conditions determining enhanced infection with the rabbit papilloma virus, 65

— and ROUS, PEYTON. The determining influence of tar, benzpyrene, and methylcholanthrene on the character of the benign tumors induced therewith in rabbit skin, 127

— and —. The initiating and promoting elements in tumor production. An analysis of the effects of tar, benzpyrene, and methylcholanthrene on rabbit skin, 101

—. See HIRST, RICKARD, and FRIEDEWALD, 265

GREIFF, DONALD, PINKERTON, HENRY, and MORAGUES, VICENTE. Effect of enzyme inhibitors and activators on the multiplication of typhus rickettsiae. I. Penicillin, para-aminobenzoic acid, sodium fluoride, and vitamins of the B group, 561

HAHN, P. F., MILLER, L. L., ROBSCHEIT-ROBBINS, F. S., BALE, W. F., and WHIPPLE, G. H. Peritoneal absorption. Red cells labeled by radio-iron hemoglobin move promptly from peritoneal cavity into the circulation, 77

—. See HAWKINS and HAHN, 31

HAWKINS, W. B., and HAHN, P. F. Biliary excretion of radioactive iron and total iron as influenced by red cell destruction, 31

HENLE, WERNER. See FOSTER, JONES, HENLE, and DORFMAN, 257

HIRST, G. K., RICKARD, E. R., and FRIEDEWALD, WILLIAM F. Studies in human immunization against influenza. Duration of immunity induced by inactive virus, 265

HOAGLAND, CHARLES L., SHANK, ROBERT E., and LAVIN, GEORGE I. The histopathology of progressive muscular dystrophy as revealed by ultraviolet photomicrography, 9

HORSFALL, FRANK L., JR. See MIRICK, THOMAS, CURNEN, and HORSFALL, 391, 407, 431

HOWE, HOWARD A., and BODIAN, DAVID. Poliomyelitis by accidental contagion in the chimpanzee, 383

HUGGINS, CHARLES, and MOULDER, PETER VINCENT. Studies on the mammary tumors of dogs. I. Lactation and the influence of ovariectomy and suprarenalectomy thereon, 441

JONES, JAMES H. See FOSTER, JONES, HENLE, and DORFMAN, 257

KABAT, ELVIN A., KAISER, HILDA, and SIKORSKI, HELEN. Preparation of the type-specific polysaccharide of the Type I meningococcus and a study of its effectiveness as an antigen in human beings, 299

KABAT, HERMAN. See NICKLE and KABAT, 247

KAISER, HILDA. See KABAT, KAISER, and SIKORSKI, 299

KEIL, HARRY, WASSERMAN, DAVID, and DAWSON, CHARLES R. The relation of chemical structure in catechol compounds and derivatives

to poison ivy hypersensitiveness in man as shown by the patch test, 275

KIMBALL, C. P. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455

KNIGHT, C. A. A sedimentable component of allantoic fluid and its relationship to influenza viruses, 83

LAUFFER, MAX A., and MILLER, GAIL LORENZ. The sedimentation rate of the biological activities of influenza A virus, 521

— and STANLEY, W. M. Biophysical properties of preparations of PR8 influenza virus, 531

—. See MILLER, LAUFFER, and STANLEY, 549

LAVIN, GEORGE I. See HOAGLAND, SHANK, and LAVIN, 9

MADDEN, S. C. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455

MAGILL, THOMAS P., and SUGG, JOHN Y. The significance of antigenic differences among strains of the "A group" of influenza viruses, 1

MILLER, GAIL LORENZ. Influence of pH and of certain other conditions on the stability of the infectivity and red cell agglutinating activity of influenza virus, 507

—, LAUFFER, MAX A., and STANLEY, W. M. Electrophoretic studies on PR8 influenza virus, 549

—. See LAUFFER and MILLER, 521

MILLER, L. L. See HAHN, MILLER, ROBSCHEIT-ROBBINS, BALE, and WHIPPLE, 77

—. See ROBSCHEIT-ROBBINS, MILLER, and WHIPPLE, 145

MIRICK, GEORGE S., THOMAS, LEWIS, CURNEN, EDWARD C., and HORSFALL, FRANK L., JR. Studies on a non-hemolytic streptococcus isolated from the respiratory tract of human beings. I. Biological characteristics of streptococcus MG, 391

—, —, —, and —. II. Immunological characteristics of streptococcus MG, 407

—, —, —, and —. III. Immunological relationship of streptococcus MG to *Streptococcus salivarius* Type I, 431

MORAGUES, VICENTE. See GREIFF, PINKERTON, and MORAGUES, 561

MORGAN, ISABEL M. See SCHLESINGER, OLITSKY, and MORGAN, 197

MOULDER, PETER VINCENT. See HUGGINS and MOULDER, 441

MUGRAGE, EDWARD R. See FLORIO, STEWART, and MUGRAGE, 165

—. See STEWART, FLORIO, and MUGRAGE, 189

MUSSELMAN, ARLYNE D. See EAGLE and MUSSELMAN, 493

NICKLE, MARGARET, and KABAT, HERMAN. Specificity in the effects on brain metabolism of two differing neurotropic viruses, 247

OLITSKY, PETER K. See SCHLESINGER, OLITSKY, and MORGAN, 197

OPIE, EUGENE L. The influence of diet on the production of tumors of the liver by butter yellow, 219

—. The pathogenesis of tumors of the liver produced by butter yellow, 231

PINKERTON, HENRY. See GREIFF, PINKERTON, and MORAGUES, 561

PUCK, THEODORE T., WISE, HENRY, and ROBERTSON, O. H. A device for automatically controlling the concentration of glycol vapors in the air, 377
PURNELL, MARJORIE A. See BOYD and PURNELL, 289

QUINBY, MABEL E. See FOSTER, JONES, HENLE, and DORFMAN, 257

RICKARD, E. R. See HIRST, RICKARD, and FRIEDEWALD, 265
ROBERTSON, O. H. See PUCK, WISE, and ROBERTSON, 377
ROBSCHEIT-ROBBINS, F. S., MILLER, L. L., and WHIPPLE, G. H. Gelatin—its usefulness and toxicity. Blood protein production impaired by continued gelatin by vein, 145
—. See HAHN, MILLER, ROBSCHEIT-ROBBINS, BALE, and WHIPPLE, 77
ROUS, PEYTON. See FRIEDEWALD and ROUS, 101, 127

SCHLESINGER, R. WALTER, OLITSKY, PETER K., and MORGAN, ISABEL M. Induced resistance of the central nervous system to experimental infection with equine encephalomyelitis virus. III. Abortive infection with Western virus and subsequent interference with the action of heterologous viruses, 197
SHANK, ROBERT E. See HOAGLAND, SHANK, and LAVIN, 9
SIKORSKI, HELEN. See KABAT, KAISER, and SIKORSKI, 299
SILBERSTEIN, H. E. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455
SILVERBERG, ROSALIE J. See FABER, SILVERBERG, and DONG, 39
SPENCER, MARGARET T. See BERNHEIMER, 321
SPRINCE, HERBERT, and WOOLLEY, D. W. Relationship of a new growth factor required by certain hemolytic streptococci to growth phenomena in other bacteria, 213
STANLEY, W. M. See LAUFFER and STANLEY, 531
—. See MILLER, LAUFFER, and STANLEY, 549
STEWART, MABEL O., FLORIO, LLOYD, and MUGRAGE, EDWARD R. Hematological findings in the golden hamster (*Cricetus auratus*), 189
—. See FLORIO, STEWART, and MUGRAGE, 165
SUGG, JOHN Y. See MAGILL and SUGG, 1

THOMAS, LEWIS. See MIRICK, THOMAS, CURNEN, and HORSFALL, 391, 407, 431

WASSERMAN, DAVID. See KEIL, WASSERMAN, and DAWSON, 275
WHIPPLE, G. H. See FINK, ENNS, KIMBALL, SILBERSTEIN, BALE, MADDEN, and WHIPPLE, 455
—. See HAHN, MILLER, ROBSCHEIT-ROBBINS, BALE, and WHIPPLE, 77
—. See ROBSCHEIT-ROBBINS, MILLER, and WHIPPLE, 145
WISE, HENRY. See PUCK, WISE, and ROBERTSON, 377
WOODS, ALAN C. See CHESNEY and WOODS, 357, 369
WOOLLEY, D. W. See SPRINCE and WOOLLEY, 213

INDEX TO SUBJECTS

ABSORPTION, peritoneal, red cells labeled by radio-iron hemoglobin move promptly from peritoneal cavity into circulation, 77

Acid, *p*-aminobenzoic, penicillin, sodium fluoride, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561

—, nucleic, distribution in cytoplasm of leucemic cell, 19

Agglutinating activity, red cell-, and stability of infectivity, of influenza virus, influence of hydrogen ion concentration and other conditions, 507

Air, concentration of glycol vapors, device for automatic control, 377

Allantoic fluid, sedimentable component, relation to influenza viruses, 83

Aminobenzoic acid, *p*-, penicillin, sodium fluoride, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561

Antigen, type-specific polysaccharide of Type I meningococcus, in human beings, 299

Antigenic differences among strains of A group of influenza viruses, significance, 1

Arthritis, *Streptobacillus moniliformis*, in chick embryo, 59

BACTERIA, growth phenomena, relation of growth factor required by hemolytic streptococci, 213

Benzoic acid, *p*-amino-, penicillin, sodium fluoride, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561

Benzpyrene, tar, and methylcholanthrene, analysis of effects on skin, initiating and promoting elements in tumor production, 101

—, tar, and methylcholanthrene, determining influence on character of benign tumors induced in skin, 127

Biliary excretion of radioactive iron and total iron influenced by red cell destruction, 31

Biological activities of influenza A virus, sedimentation rate, 521

— characteristics of non-hemolytic streptococcus isolated from human respiratory tract, 391

Biophysical properties of PR8 influenza virus, 531

Blood corpuscle, red. *See* Erythrocyte.

— protein production impaired by continued gelatin by vein, 145

Brain metabolism, specificity in effects of two differing neurotropic viruses, 247

Butter yellow, pathogenesis of liver tumors produced by, 231

— yellow, production of liver tumors, influence of diet, 219

CATECHOL compounds and derivatives, chemical structure, relation to poison ivy hypersensitiveness in man shown by patch test, 275

Cell, blood, red. *See* Erythrocyte.

—, leucemic, distribution of nucleic acid in cytoplasm, 19

Chemical structure in catechol compounds and derivatives, relation to poison ivy hypersensitiveness in man shown by patch test, 275

Cholanthrene, methyl-, tar, and benzpyrene, analysis of effects on skin, initiating and promoting elements in tumor production, 101
—, methyl-, tar, and benzpyrene, determining influence on character of benign tumors induced in skin, 127
Circulation, red cells labeled by radio-iron hemoglobin move promptly from peritoneal cavity into, 77
Clostridium septicum hemolysin, kinetics of lysis by, 333
— *septicum* toxin, lethal and hemolytic activity, paralellism, 309
— *septicum* toxin, nutritional requirements and factors affecting production, 321
Colorado tick fever, transmission, 165
Contagion, accidental, in chimpanzee, poliomyelitis, 383
Cornea, development of immunity to syphilis after intratesticular inoculation, influence of non-specific inflammatory reaction, 369
Corneal inoculation, primary, development of immunity in syphilis after, 357
Corpuscle, blood, red. *See* Erythrocyte.
Cricetus auratus, hematology, 189
Cytoplasm, leucemic cell, distribution of nucleic acid, 19

DEFICIENCY, vitamin B_1, and restriction of food intake, comparative effects on response to poliomyelitis virus, determined by paired feeding technique, 257
Diet, influence on production of liver tumors by butter yellow, 219
Dystrophy, muscular, progressive, histopathology revealed by ultraviolet photomicrography, 9

ELECTROPHORETIC studies on PR8 influenza virus, 549
Embryo, chick, *Streptobacillus moniliformis* arthritis, 59
Encephalomyelitis, equine, virus, induced resistance of central nervous system to infection with, abortive infection with Western virus and subsequent interference with action of heterologous viruses, 197
Enzyme inhibitors and activators, penicillin, *p*-aminobenzoic acid, sodium fluoride, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561
Erythrocyte destruction, biliary excretion of radioactive iron and total iron influenced by, 31
Erythrocyte-agglutinating activity and stability of infectivity of influenza virus, influence of hydrogen ion concentration and other conditions, 507
Erythrocytes, labeled by radio-iron hemoglobin move promptly from peritoneal cavity into circulation in peritoneal absorption, 77
Excretion, biliary, of radioactive iron and total iron, influenced by red cell destruction, 31
Eye, development of immunity to syphilis after primary intracorneal inoculation, 357
—, influence of non-specific inflammatory reaction in cornea on development of immunity to syphilis in that tissue after intratesticular inoculation, 369

FEVER, tick, Colorado. *See* Colorado tick fever.
Flocculation ratios, two optimum proportions, essential difference between, 289
Fluid, allantoic, sedimentable component, relation to influenza viruses, 83
Food intake, restriction and vitamin B_1 deficiency, comparative effects on response to poliomyelitis virus, determined by paired feeding technique, 257

GELATIN, usefulness and toxicity, blood protein production impaired by continued gelatin by vein, 145
Glycol vapors, concentration in air, device for automatic control, 377
Growth factor required by hemolytic streptococci, relation to growth phenomena in other bacteria, 213

HAMSTER, *Cricetus auratus*, hematology, 189
Hematological findings in golden hamster, *Cricetus auratus*, 189
Hemoglobin, radio-iron, red cells labeled by, prompt movement from peritoneal cavity into circulation in peritoneal absorption, 77
Hemolysin, *Clostridium septicum*, kinetics of lysis by, 333
Hemolytic and lethal activity of *Clostridium septicum* toxin, parallelism, 309
—, non-, streptococcus, isolated from human respiratory tract, biological characteristics, 391
—, non-, streptococcus, isolated from human respiratory tract, immunological characteristics, 407
—, non-, streptococcus MG, isolated from human respiratory tract, immunological relation to *Streptococcus salivarius* Type I, 431
— streptococci, growth factor, relation to growth phenomena in other bacteria, 213
Heterologous equine encephalomyelitis viruses, abortive infection with Western virus and subsequent interference with action of, 197
Histopathology of progressive muscular dystrophy revealed by ultraviolet photomicrography, 9
Horse encephalomyelitis virus, induced resistance of central nervous system to infection with, abortive infection with Western virus and subsequent interference with action of heterologous viruses, 197
Hydrogen ion concentration, influence on stability of infectivity and red cell-agglutinating activity of influenza virus, 507
Hypersensitiveness, poison ivy, in man, relation of chemical structure in cathechol compounds and derivatives shown by patch test, 275

IMMUNITY, influenza, human, induced by inactive virus, duration, 265
—, syphilis, development after primary intracorneal inoculation, 357
—, syphilis, development in cornea after intratesticular inoculation, influence of non-specific inflammatory reaction in cornea, 369
Immunization, human, against influenza, duration of immunity induced by inactive virus, 265
— with influenza virus vaccines, adjuvants, 477
Immunological characteristics of nonhemolytic streptococcus isolated from human respiratory tract, 407
— relation of streptococcus MG isolated from human respiratory tract to *Streptococcus salivarius* Type I, 431
Inflammatory reaction, non-specific, in cornea, influence on development of immunity to syphilis in that tissue after intratesticular inoculation, 369
Influenza, duration of human immunity induced by inactive virus, 265
— A virus, biological activities, sedimentation rate, 521
— virus, PR8, biophysical properties, 531
— virus, PR8, electrophoretic studies, 549
— virus, red cell-agglutinating activity and stability of infectivity, influence of hydrogen ion concentration and other conditions, 507

Influenza virus vaccines, adjuvants in immunization, 477
— viruses, A group, antigenic differences among strains, significance, 1
— viruses, relation of sedimentable component of allantoic fluid, 83
Inhalation of droplet nuclei and nasopharyngeal portal of entry, infection with poliomyelitis in *cynomolgus* and *rhesus*, 39
Inoculation, intratesticular, influence of non-specific inflammatory reaction in cornea on development of immunity to syphilis in cornea after, 369
—, primary intracorneal, development of immunity in syphilis after, 357
Iron, radio-, hemoglobin, red cells labeled by, prompt movement from peritoneal cavity into circulation in peritoneal absorption, 77
—, radioactive and total, biliary excretion influenced by red cell destruction, 31

KINETICS of lysis by *Clostridium septicum* hemolysin, 333

LACTATION, influence of ovariectomy and suprarenalectomy, in studies on mammary tumors, 441
Leucemic cell, cytoplasm, distribution of nucleic acid, 19
Liver tumors produced by butter yellow, pathogenesis, 231
— tumors, production by butter yellow, influence of diet, 219
Lysine, heavy nitrogen in, used to label protein in observations on plasma protein metabolism, normal and associated with shock, 455
Lysis by *Clostridium septicum* hemolysin, kinetics, 333

MAMMARY tumors, influence of ovariectomy and suprarenalectomy on lactation, 441
Man, effectiveness of type-specific polysaccharide of Type I meningococcus as antigen, 299
—, immunization against influenza, duration of immunity induced by inactive virus, 265
—, poison ivy hypersensitiveness, relation of chemical structure in catechol compounds and derivatives shown by patch test, 275
—, respiratory tract, non-hemolytic streptococcus isolated from, biological characteristics, 391
—, respiratory tract, non-hemolytic streptococcus isolated from, immunological characteristics, 407
—, respiratory tract, non-hemolytic streptococcus MG isolated from, and *Streptococcus salivarius* Type I, immunological relation, 431
Meningococcus, Type I, type-specific polysaccharide, preparation, and effectiveness as antigen in human beings, 299
Metabolism, brain, specificity in effects of two differing neurotropic viruses, 247
—, plasma protein, normal and associated with shock, observations using protein labeled by heavy nitrogen in lysine, 455
Methylcholanthrene, tar, and benzpyrene, analysis of effects on skin, initiating and promoting elements in tumor production, 101
—, tar, and benzpyrene, determining influence on character of benign tumors induced in skin, 127
Micrography, photo-, ultraviolet, histopathology of progressive muscular dystrophy, 9
Microsomes and mitochondria, constitution, and distribution of nucleic acid in cytoplasm of leucemic cell, 19

Mitochondria and microsomes, constitution, and distribution of nucleic acid in cytoplasm of leucemic cell, 19
Muscular dystrophy, progressive, histopathology revealed by ultraviolet photomicrography, 9

NASOPHARYNGEAL portal of entry and infection by inhalation of droplet nuclei in poliomyelitis in *cynomolgus* and *rhesus*, 39
Nervous system, central, induced resistance to infection with equine encephalomyelitis virus, abortive infection with Western virus and subsequent interference with action of heterologous viruses, 197
Neurotropic viruses, two differing, specificity in effects on brain metabolism, 247
Nitrogen, heavy, in lysine, used to label protein in observations on plasma protein metabolism, normal and associated with shock, 455
Nucleic acid, distribution in cytoplasm of leucemic cell, 19
Nutritional requirements and factors affecting production of *Clostridium septicum* toxin, 321

OVARIECTOMY and suprarenalectomy, influence on lactation, in studies on mammary tumors, 441

PAPILLOMA virus, rabbit, conditions determining enhanced infection with, 65
Pathogenesis of liver tumors produced by butter yellow, 231
Pathology, histo–, of progressive muscular dystrophy revealed by ultraviolet photomicrography, 9
Penicillin, *p*-amino benzoic acid, sodium fluoride, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561
—, spirocheticidal action *in vitro* and temperature coefficient, 493
Peritoneal absorption, red cells labeled by radio-iron hemoglobin move promptly from peritoneal cavity into circulation, 77
Photomicrography, ultraviolet, histopathology of progressive muscular dystrophy, 9
Plasma protein metabolism, normal and associated with shock, observations using protein labeled by heavy nitrogen in lysine, 455
Poison ivy hypersensitiveness in man, relation of chemical structure in catechol compounds and derivatives shown by patch test, 275
Poliomyelitis by accidental contagion in chimpanzee, 383
— in *cynomolgus* and *rhesus*, infection by inhalation of droplet nuclei and nasopharyngeal portal of entry, 39
— virus, comparative effects of vitamin B_1 deficiency and restriction of food intake on response to, determination by paired feeding technique, 257
Polysaccharide, type-specific, of Type I meningococcus, preparation, and effectiveness as antigen in human beings, 299
Protein, blood, production impaired by continued gelatin by vein, 145
—, plasma, metabolism, normal and associated with shock, observations using protein labeled by heavy nitrogen in lysine, 455
Pyrene, benz-, tar, and methylcholanthrene, analysis of effects on skin, initiating and promoting elements in tumor production, 101
—, benz-, tar, and methylcholanthrene, determining influence on character of benign tumors induced in skin, 127

RADIOACTIVE iron and total iron, biliary excretion influenced by red cell destruction, 31
Radio-iron hemoglobin, red cells labeled by, prompt movement from

peritoneal cavity into circulation in peritoneal absorption, 77
Resistance, induced, of central nervous system, to infection with equine encephalomyelitis virus, abortive infection with Western virus and subsequent interference with action of heterologous viruses, 197
Respiratory tract, human, non-hemolytic streptococcus isolated from, biological characteristics, 391
— tract, human, non-hemolytic streptococcus isolated from, immunological characteristics, 407
— tract, human, non-hemolytic streptococcus MG isolated from, and *Streptococcus salivarius* Type I, immunological relation, 431
Rickettsiae, typhus, multiplication, effect of penicillin, *p*-aminobenzoic acid, sodium fluoride, and vitamins of B group, 561

SEDIMENTABLE component of allantoic fluid, relation to influenza viruses, 83
Sedimentation rate of biological activities of influenza A virus, 521
Shock, plasma protein metabolism associated with, observations using protein labeled by heavy nitrogen in lysine, 455
Skin, analysis of effects of tar, benzpyrene, and methylcholanthrene, initiating and promoting elements in tumor production, 101
—, determining influence of tar, benzpyrene, and methylcholanthrene on character of benign tumors induced in, 127
Sodium fluoride, penicillin, *p*-aminobenzoic acid, and vitamins of B group, effect on multiplication of typhus rickettsiae, 561
Specific, type-, polysaccharide of Type I meningococcus, preparation, and effectiveness as antigen in human beings, 299
Spirocheticidal action of penicillin *in vitro* and temperature coefficient, 493
Streptobacillus moniliformis arthritis in chick embryo, 59
Streptococci, hemolytic, growth factor, relation to growth phenomena in other bacteria, 213
Streptococcus, non-hemolytic, isolated from human respiratory tract, biological characteristics, 391
—, non-hemolytic, isolated from human respiratory tract, immunological characteristics, 407
— MG, non-hemolytic, isolated from human respiratory tract, immunological relation to *Streptococcus salivarius* Type I, 431
Suprarenalectomy and ovariectomy, influence on lactation, in studies on mammary tumors, 441
Syphilis, immunity, development after primary intracorneal inoculation, 357
—, influence of non-specific inflammatory reaction in cornea on development of immunity in that tissue after intratesticular inoculation, 369

TAR, benzpyrene, and methylcholanthrene, analysis of effects on skin, initiating and promoting elements in tumor production, 101
—, benzpyrene, and methylcholanthrene, determining influence on character of benign tumors induced in skin, 127
Temperature coefficient of penicillin and spirocheticidal action *in vitro*, 493
Test, patch, relation of chemical structure in catechol compounds and derivatives to poison ivy hypersensitiveness in man shown by, 275
Testicle, inoculation with syphilis, influence of non-specific inflam-

matory reaction in cornea on development of immunity in cornea after, 369
Tick fever, Colorado, transmission, 165
Tissue, cornea, development of immunity to syphilis after intratesticular inoculation, influence of non-specific inflammatory reaction, 369
Toxicity and usefulness of gelatin, blood protein production impaired by continued gelatin by vein, 145
Toxin, *Clostridium septicum*, lethal and hemolytic activity, paralellism, 309
—, *Clostridium septicum*, nutritional requirements and factors affecting production, 321
Transmission, Colorado tick fever, 165
Tumor production, initiating and promoting elements, analysis of effects of tar, benzpyrene, and methylcholanthrene on skin, 101
Tumors, benign, induced in skin, character, determining influence of tar, benzpyrene, and methylcholanthrene, 127
—, liver, produced by butter yellow, pathogenesis, 231
—, liver, production by butter yellow, influence of diet, 219
—, mammary, influence of ovariectomy and suprarenalectomy on lactation, 441
Typhus infection in Eastern cotton rat, *Sigmodon hispidus hispidus*, 341
— rickettsiae, multiplication, effect of penicillin, *p*-aminobenzoic acid, sodium fluoride, and vitamins of B group, 561

ULTRAVIOLET photomicrography, histopathology of progressive muscular dystrophy, 9

VACCINES, influenza virus, adjuvants in immunization, 477
Vapors, glycol, concentration in air, device for automatic control, 377
Vein, blood protein production impaired by continued gelatin by, 145
Virus, encephalomyelitis, equine, induced resistance of central nervous system to infection with, abortive infection with Western virus and subsequent interference with action of heterologous viruses, 197
—, influenza A, biological activities, sedimentation rate, 521
—, influenza, PR8, biophysical properties, 531
—, influenza, PR8, electrophoretic studies, 549
—, influenza, inactive, duration of human immunity induced by, 265
—, influenza, red cell-agglutinating activity and stability of infectivity, influence of hydrogen ion concentration and other conditions, 507
—, influenza, vaccines, adjuvants in immunization, 477
—, papilloma, rabbit, conditions determining enhanced infection with, 65
—, poliomyelitis, determination by paired feeding technique of comparative effects of vitamin B_1 deficiency and restriction of food intake on response to, 257
Viruses, influenza, A group, antigenic differences among strains, significance, 1
—, influenza, relation of sedimentable component of allantoic fluid, 83
—, neurotropic, two differing, specificity in effects on brain metabolism, 247

Vitamin B_1 deficiency and restriction of food intake, comparative effects on response to poliomyelitis virus, determined by paired feeding technique, 257

Vitamins, B group, penicillin, *p*-aminobenzoic acid, and sodium fluoride, effect on multiplication of typhus rickettsiae, 561